

## XXIV.—Information respecting Botanical Travellers.

*Extracts from a Journal of the Mission which visited Bootan, in 1837-38, under Captain R. BOILEAU PEMBERTON. By W. GRIF-FITH, Esq., Madras Medical Establishment.*

[Continued from p. 125.]

*March 1st.* Proceeded to Byagur or Juggur. The vegetation continued the same, the road traversing either sward or fir woods, consisting entirely of *Pinus excelsa*. The valley in which Byagur is situated is still larger than that of Bhoomlungtung: it is drained by a large river, which is crossed by a somewhat dilapidated wooden bridge; the elevation is about 8150 feet. The cultivation is similar to that of the other valley, but the crops looked very unpromising. The soil is by no means rich, and the wind excessively bleak; wheat or barley are the only grains cultivated. The mountains which hem in this valley are not very lofty; to the north, in the back ground, perpetual snow was visible. To our west was the ridge which we were told we should have to cross, and which in its higher parts could not be less than 12,000 feet.

*March 4th.* We commenced ascending the above ridge almost immediately on starting; surmounting this, which is of an elevation at the part we crossed of 11,035 feet, we continued for some time at the same level, through fine open woods of *Pinus Smithiana*: having descended rapidly afterwards to a small nullah, 9642 feet in elevation, we then reascended slightly to descend into the Jaisa valley. On the east side of the ridge, i. e. that which overlooks Byagur, we soon came on snow, but none was seen on its western face, notwithstanding the great elevation. The country was very beautiful, particularly in the higher elevations. I may here advert to the bad taste exhibited in naming such objects after persons, with whom they have no association whatever. As it is not possible for all travellers to be consecrated by genera, although this practice is daily becoming more common, we should connect their names with such trees as are familiar to every European. As we have a *Pinus Gerardiana* and *Webbiana*, so we ought to have had *Pinus Herbertiana* and *Moorcroftiana*, &c. By so doing, on meeting with fir trees among the snow-clad Himalayas, we should not only have beautiful objects before us, but beautiful and exciting associations of able and enduring travellers. Of Capt. Herbert, the most accomplished historian of these magnificent mountains, there is nothing *living* to give him a "local habitation and a name." It will be a duty to me to remedy this neglect; and if I have not a sufficiently fine fir tree hitherto unde-

## XXIV.—Information respecting Botanical Travellers.

*Extracts from a Journal of the Mission which visited Bootan, in 1837-38, under Captain R. BOILEAU PEMBERTON. By W. GRIF-FITH, Esq., Madras Medical Establishment.*

[Continued from p. 125.]

*March 1st.* Proceeded to Byagur or Juggur. The vegetation continued the same, the road traversing either sward or fir woods, consisting entirely of *Pinus excelsa*. The valley in which Byagur is situated is still larger than that of Bhoomlungtung: it is drained by a large river, which is crossed by a somewhat dilapidated wooden bridge; the elevation is about 8150 feet. The cultivation is similar to that of the other valley, but the crops looked very unpromising. The soil is by no means rich, and the wind excessively bleak; wheat or barley are the only grains cultivated. The mountains which hem in this valley are not very lofty; to the north, in the back ground, perpetual snow was visible. To our west was the ridge which we were told we should have to cross, and which in its higher parts could not be less than 12,000 feet.

*March 4th.* We commenced ascending the above ridge almost immediately on starting; surmounting this, which is of an elevation at the part we crossed of 11,035 feet, we continued for some time at the same level, through fine open woods of *Pinus Smithiana*: having descended rapidly afterwards to a small nullah, 9642 feet in elevation, we then reascended slightly to descend into the Jaisa valley. On the east side of the ridge, i. e. that which overlooks Byagur, we soon came on snow, but none was seen on its western face, notwithstanding the great elevation. The country was very beautiful, particularly in the higher elevations. I may here advert to the bad taste exhibited in naming such objects after persons, with whom they have no association whatever. As it is not possible for all travellers to be consecrated by genera, although this practice is daily becoming more common, we should connect their names with such trees as are familiar to every European. As we have a *Pinus Gerardiana* and *Webbiana*, so we ought to have had *Pinus Herbertiana* and *Moorcroftiana*, &c. By so doing, on meeting with fir trees among the snow-clad Himalayas, we should not only have beautiful objects before us, but beautiful and exciting associations of able and enduring travellers. Of Capt. Herbert, the most accomplished historian of these magnificent mountains, there is nothing *living* to give him a "local habitation and a name." It will be a duty to me to remedy this neglect; and if I have not a sufficiently fine fir tree hitherto unde-

## XXIV.—Information respecting Botanical Travellers.

*Extracts from a Journal of the Mission which visited Bootan, in 1837-38, under Captain R. BOILEAU PEMBERTON. By W. GRIF-FITH, Esq., Madras Medical Establishment.*

[Continued from p. 125.]

*March 1st.* Proceeded to Byagur or Juggur. The vegetation continued the same, the road traversing either sward or fir woods, consisting entirely of *Pinus excelsa*. The valley in which Byagur is situated is still larger than that of Bhoomlungtung: it is drained by a large river, which is crossed by a somewhat dilapidated wooden bridge; the elevation is about 8150 feet. The cultivation is similar to that of the other valley, but the crops looked very unpromising. The soil is by no means rich, and the wind excessively bleak; wheat or barley are the only grains cultivated. The mountains which hem in this valley are not very lofty; to the north, in the back ground, perpetual snow was visible. To our west was the ridge which we were told we should have to cross, and which in its higher parts could not be less than 12,000 feet.

*March 4th.* We commenced ascending the above ridge almost immediately on starting; surmounting this, which is of an elevation at the part we crossed of 11,035 feet, we continued for some time at the same level, through fine open woods of *Pinus Smithiana*: having descended rapidly afterwards to a small nullah, 9642 feet in elevation, we then reascended slightly to descend into the Jaisa valley. On the east side of the ridge, i. e. that which overlooks Byagur, we soon came on snow, but none was seen on its western face, notwithstanding the great elevation. The country was very beautiful, particularly in the higher elevations. I may here advert to the bad taste exhibited in naming such objects after persons, with whom they have no association whatever. As it is not possible for all travellers to be consecrated by genera, although this practice is daily becoming more common, we should connect their names with such trees as are familiar to every European. As we have a *Pinus Gerardiana* and *Webbiana*, so we ought to have had *Pinus Herbertiana* and *Moorcroftiana*, &c. By so doing, on meeting with fir trees among the snow-clad Himalayas, we should not only have beautiful objects before us, but beautiful and exciting associations of able and enduring travellers. Of Capt. Herbert, the most accomplished historian of these magnificent mountains, there is nothing *living* to give him a "local habitation and a name." It will be a duty to me to remedy this neglect; and if I have not a sufficiently fine fir tree hitherto unde-

scribed in the Bootan collection, I shall change the name of the very finest hitherto found, and dignify it by the name *Herbertiana*. The prevailing tree was the Smithian pine. We saw scarcely any villages, and but very little cultivation. Jaisa is a good-sized village; it was comparatively clean, and the houses were, I think, better than most we had hitherto seen. There is a good deal of wheat cultivation around the village, which is not the only occupant of the valley: this is the highest we had yet seen, and is perhaps one of the highest inhabited valleys known, as it is 9410 feet above the sea; it is drained by a small stream, and is of less extent than either that of Byagur or Bhoomlungtung. The surrounding hills are covered with open fir woods, and are of no considerable height. Larks, magpies, and red-legged crows, continued plentiful, but on leaving this valley we lost them.

*March 5th.* We proceeded up the valley, keeping along the banks of the stream for some time; we then commenced ascending a ridge, the top of which we reached about noon; its elevation was 10,930 feet. The descent from this was for about 2500 feet very steep and uninterrupted, until we reached a small torrent at an elevation of 8473 feet; from this we ascended slightly through thick woods of oak, &c. until we came on open grassy tracts, through which we now gradually descended at a great height above the stream, which we had left a short time before. We continued descending rather more rapidly until we came to a point almost immediately above Tongsa, by about 1000 feet; from this the descent was excessively steep. The distance was 13 miles. On the ascent snow was common from a height of 9000 feet upwards. The vegetation on this, or the eastern side, was in some places similar to that above Byagur. Beautiful fir woods formed the chief vegetation, until we came close to the summit, when it changed completely. Rhododendrons, *Bogh puttah*, and a species of birch and bamboos, were common, mixed with a few black pines. The woods through which we descended, were in the higher elevations almost entirely of rhododendrons; and lower down chiefly of various species of oak and maple—the former being dry and very open, the latter humid and choked up with underwood. After coming on the open grassy country we did not revert to well-wooded tracts. No villages occurred, nor did we see any signs of cultivation after leaving the valley of Jaisa until we came near Tongsa, above which barley fields were not uncommon. Tongsa, although the second, or at any rate the third place in Bootan, is as miserable a place as any body would wish to see. It is wretchedly situated in a very narrow ravine, drained by a petty stream, on the

scribed in the Bootan collection, I shall change the name of the very finest hitherto found, and dignify it by the name *Herbertiana*. The prevailing tree was the Smithian pine. We saw scarcely any villages, and but very little cultivation. Jaisa is a good-sized village; it was comparatively clean, and the houses were, I think, better than most we had hitherto seen. There is a good deal of wheat cultivation around the village, which is not the only occupant of the valley: this is the highest we had yet seen, and is perhaps one of the highest inhabited valleys known, as it is 9410 feet above the sea; it is drained by a small stream, and is of less extent than either that of Byagur or Bhoomlungtung. The surrounding hills are covered with open fir woods, and are of no considerable height. Larks, magpies, and red-legged crows, continued plentiful, but on leaving this valley we lost them.

*March 5th.* We proceeded up the valley, keeping along the banks of the stream for some time; we then commenced ascending a ridge, the top of which we reached about noon; its elevation was 10,930 feet. The descent from this was for about 2500 feet very steep and uninterrupted, until we reached a small torrent at an elevation of 8473 feet; from this we ascended slightly through thick woods of oak, &c. until we came on open grassy tracts, through which we now gradually descended at a great height above the stream, which we had left a short time before. We continued descending rather more rapidly until we came to a point almost immediately above Tongsa, by about 1000 feet; from this the descent was excessively steep. The distance was 13 miles. On the ascent snow was common from a height of 9000 feet upwards. The vegetation on this, or the eastern side, was in some places similar to that above Byagur. Beautiful fir woods formed the chief vegetation, until we came close to the summit, when it changed completely. Rhododendrons, *Bogh puttah*, and a species of birch and bamboos, were common, mixed with a few black pines. The woods through which we descended, were in the higher elevations almost entirely of rhododendrons; and lower down chiefly of various species of oak and maple—the former being dry and very open, the latter humid and choked up with underwood. After coming on the open grassy country we did not revert to well-wooded tracts. No villages occurred, nor did we see any signs of cultivation after leaving the valley of Jaisa until we came near Tongsa, above which barley fields were not uncommon. Tongsa, although the second, or at any rate the third place in Bootan, is as miserable a place as any body would wish to see. It is wretchedly situated in a very narrow ravine, drained by a petty stream, on the

scribed in the Bootan collection, I shall change the name of the very finest hitherto found, and dignify it by the name *Herbertiana*. The prevailing tree was the Smithian pine. We saw scarcely any villages, and but very little cultivation. Jaisa is a good-sized village; it was comparatively clean, and the houses were, I think, better than most we had hitherto seen. There is a good deal of wheat cultivation around the village, which is not the only occupant of the valley: this is the highest we had yet seen, and is perhaps one of the highest inhabited valleys known, as it is 9410 feet above the sea; it is drained by a small stream, and is of less extent than either that of Byagur or Bhoomlungtung. The surrounding hills are covered with open fir woods, and are of no considerable height. Larks, magpies, and red-legged crows, continued plentiful, but on leaving this valley we lost them.

*March 5th.* We proceeded up the valley, keeping along the banks of the stream for some time; we then commenced ascending a ridge, the top of which we reached about noon; its elevation was 10,930 feet. The descent from this was for about 2500 feet very steep and uninterrupted, until we reached a small torrent at an elevation of 8473 feet; from this we ascended slightly through thick woods of oak, &c. until we came on open grassy tracts, through which we now gradually descended at a great height above the stream, which we had left a short time before. We continued descending rather more rapidly until we came to a point almost immediately above Tongsa, by about 1000 feet; from this the descent was excessively steep. The distance was 13 miles. On the ascent snow was common from a height of 9000 feet upwards. The vegetation on this, or the eastern side, was in some places similar to that above Byagur. Beautiful fir woods formed the chief vegetation, until we came close to the summit, when it changed completely. Rhododendrons, *Bogh puttah*, and a species of birch and bamboos, were common, mixed with a few black pines. The woods through which we descended, were in the higher elevations almost entirely of rhododendrons; and lower down chiefly of various species of oak and maple—the former being dry and very open, the latter humid and choked up with underwood. After coming on the open grassy country we did not revert to well-wooded tracts. No villages occurred, nor did we see any signs of cultivation after leaving the valley of Jaisa until we came near Tongsa, above which barley fields were not uncommon. Tongsa, although the second, or at any rate the third place in Bootan, is as miserable a place as any body would wish to see. It is wretchedly situated in a very narrow ravine, drained by a petty stream, on the

tongue of land formed by its entrance into the large torrent Mateesum, which flows 1200 feet below where the castle stands. The surrounding country is uninteresting, the vegetation consisting of a few low shrubs and some grasses: of the former the most common are a species of barberry, and a hitherto undescribed genus of *Hamamelidæ*. No woods can be reached without ascending 1200 or 1500 feet. Barley was the chief cultivation we saw, but the crops alternated with rice, which is here cultivated as high as 6800 feet. In the gardens attached to the cottages, or rather huts, we observed the almond and pear in full blossom: the only other trees were two or three weeping cypresses and willows, and a solitary poplar. Nothing could well exceed the discomfort we had to undergo during our tedious stay at this place. Our difficulties were increased subsequently to our arrival by the occurrence of unsettled weather, during which we had ample proofs that Bootan houses are not always water-proof; we were besides incessantly annoyed with a profusion of rats, bugs, and fleas; nor was there a single thing to counterbalance all these inconveniences, and we consequently left the place without the shadow of a feeling of regret.

*March 24th.* To Tchinjipjee. We commenced by ascending until we had surmounted a ridge about 800 feet above Taseeling; during the remainder of the march we traversed undulating ground at nearly the same altitude, at first through an open country, afterward through beautiful oak and magnolia woods, until we came on the torrent above which we had been ascending since leaving the Mateesum; a little further on we came on the finest temple we had seen, and situated in a most romantic spot. It stood on a fine patch of sward, in a gorge of the ravine, the sides of which were covered with beautiful cedar-looking pines; the back ground was formed by lofty mountains covered with heavy snow. Following the river upwards for about a mile and a half, we reached Tchinjipjee, which is situated on the right bank of the torrent. The march was throughout beautiful, particularly through the forest, which abounded in picturesque glades. No villages or cultivation were seen. Tchinjipjee is perhaps the prettiest place we saw in Bootan; our halting-place stood on fine sward, well ornamented with (*Quercus seme carpifolia*?) very picturesque oaks, and two fine specimens of weeping cypress. The surrounding hills are low, either almost entirely bare or clothed with pines. The village is of ordinary size, and is the only one visible in any direction; its elevation is 786 feet. There is some cultivation about it, chiefly of barley, mixed with radishes.

*March 27th.* We continued following the river upwards, the path

tongue of land formed by its entrance into the large torrent Mateesum, which flows 1200 feet below where the castle stands. The surrounding country is uninteresting, the vegetation consisting of a few low shrubs and some grasses: of the former the most common are a species of barberry, and a hitherto undescribed genus of *Hamamelidæ*. No woods can be reached without ascending 1200 or 1500 feet. Barley was the chief cultivation we saw, but the crops alternated with rice, which is here cultivated as high as 6800 feet. In the gardens attached to the cottages, or rather huts, we observed the almond and pear in full blossom: the only other trees were two or three weeping cypresses and willows, and a solitary poplar. Nothing could well exceed the discomfort we had to undergo during our tedious stay at this place. Our difficulties were increased subsequently to our arrival by the occurrence of unsettled weather, during which we had ample proofs that Bootan houses are not always water-proof; we were besides incessantly annoyed with a profusion of rats, bugs, and fleas; nor was there a single thing to counterbalance all these inconveniences, and we consequently left the place without the shadow of a feeling of regret.

*March 24th.* To Tchinjipjee. We commenced by ascending until we had surmounted a ridge about 800 feet above Taseeling; during the remainder of the march we traversed undulating ground at nearly the same altitude, at first through an open country, afterward through beautiful oak and magnolia woods, until we came on the torrent above which we had been ascending since leaving the Mateesum; a little further on we came on the finest temple we had seen, and situated in a most romantic spot. It stood on a fine patch of sward, in a gorge of the ravine, the sides of which were covered with beautiful cedar-looking pines; the back ground was formed by lofty mountains covered with heavy snow. Following the river upwards for about a mile and a half, we reached Tchinjipjee, which is situated on the right bank of the torrent. The march was throughout beautiful, particularly through the forest, which abounded in picturesque glades. No villages or cultivation were seen. Tchinjipjee is perhaps the prettiest place we saw in Bootan; our halting-place stood on fine sward, well ornamented with (*Quercus seme carpifolia*?) very picturesque oaks, and two fine specimens of weeping cypress. The surrounding hills are low, either almost entirely bare or clothed with pines. The village is of ordinary size, and is the only one visible in any direction; its elevation is 786 feet. There is some cultivation about it, chiefly of barley, mixed with radishes.

*March 27th.* We continued following the river upwards, the path



tongue of land formed by its entrance into the large torrent Mateesum, which flows 1200 feet below where the castle stands. The surrounding country is uninteresting, the vegetation consisting of a few low shrubs and some grasses: of the former the most common are a species of barberry, and a hitherto undescribed genus of *Hamamelidæ*. No woods can be reached without ascending 1200 or 1500 feet. Barley was the chief cultivation we saw, but the crops alternated with rice, which is here cultivated as high as 6800 feet. In the gardens attached to the cottages, or rather huts, we observed the almond and pear in full blossom: the only other trees were two or three weeping cypresses and willows, and a solitary poplar. Nothing could well exceed the discomfort we had to undergo during our tedious stay at this place. Our difficulties were increased subsequently to our arrival by the occurrence of unsettled weather, during which we had ample proofs that Bootan houses are not always water-proof; we were besides incessantly annoyed with a profusion of rats, bugs, and fleas; nor was there a single thing to counterbalance all these inconveniences, and we consequently left the place without the shadow of a feeling of regret.

*March 24th.* To Tchinjipjee. We commenced by ascending until we had surmounted a ridge about 800 feet above Taseeling; during the remainder of the march we traversed undulating ground at nearly the same altitude, at first through an open country, afterward through beautiful oak and magnolia woods, until we came on the torrent above which we had been ascending since leaving the Mateesum; a little further on we came on the finest temple we had seen, and situated in a most romantic spot. It stood on a fine patch of sward, in a gorge of the ravine, the sides of which were covered with beautiful cedar-looking pines; the back ground was formed by lofty mountains covered with heavy snow. Following the river upwards for about a mile and a half, we reached Tchinjipjee, which is situated on the right bank of the torrent. The march was throughout beautiful, particularly through the forest, which abounded in picturesque glades. No villages or cultivation were seen. Tchinjipjee is perhaps the prettiest place we saw in Bootan; our halting-place stood on fine sward, well ornamented with (*Quercus seme carpifolia*?) very picturesque oaks, and two fine specimens of weeping cypress. The surrounding hills are low, either almost entirely bare or clothed with pines. The village is of ordinary size, and is the only one visible in any direction; its elevation is 786 feet. There is some cultivation about it, chiefly of barley, mixed with radishes.

*March 27th.* We continued following the river upwards, the path

running generally at a small height above its bed. Having crossed it by a rude wooden bridge, we diverged up a tributary stream, until we reached a small village; we thence continued ascending over easy grassy slopes, here and there prettily wooded, until we reached the base of the chief ascent, which is not steep, but long, the path running along the margin of a rhododendron and juniper wood: the height of its summit is 10,873 feet. Thence to Rydang was an uninterrupted and steep descent, the path traversing very beautiful woods of rhododendrons, oaks, yews, &c. Snow was still seen lingering in sheltered places above 10,000 feet. The march throughout was beautiful. In the higher elevations the *Bogh Pat* was very common. Besides the village mentioned, two temporary ones were seen near the base of the great ascent, built for the accommodation of the Yaks and their herdsmen: of this curious animal two herds were seen at some distance.

*March 28th.* We descended directly to the river Gnee, which drains the ravine, and continued down it sometime, crossing it once; then diverging up a small nullah we commenced an ascent, which did not cease until we had reached an elevation of 8374 feet. Continuing for some time at this elevation we traversed picturesque oak and rhododendron woods, with occasionally swardy spots; subsequently descending for a long time until we reached Santagong, in the direction of which the trees became stunted, and the country presented a barren aspect. Santagong is 6300 feet above the sea; it is a small village, but the houses are better than ordinary. The surrounding country, especially to the north, is well cultivated, and the villages numerous. The country is bare of trees; almost the only ones to be seen are some long leaved firs, a short distance below Santagong, close to a small jheel abounding in water-fowl.

*March 29th.* From Santagong we proceeded to Phain, descending immediately to the stream, which runs nearly 1800 feet below our halting-place. Towards Phain the soil became of a deep red colour. This place, which is 5280 feet above the sea, is a small village, containing six or seven tolerable houses.

*April 1st.* To Punnukka. We descended rather gradually towards the Patchien, proceeding at first north-west, and then to the north. On reaching the stream, which is of considerable size, we followed it up, chiefly along its banks, until we arrived at the capital, no view of which is obtained until it is approached very closely. The valley of the Patchien was throughout the march very narrow; there was a good deal of miserable wheat cultivation in it, and some villages, all of moderate size. The country continued extremely bare.

running generally at a small height above its bed. Having crossed it by a rude wooden bridge, we diverged up a tributary stream, until we reached a small village; we thence continued ascending over easy grassy slopes, here and there prettily wooded, until we reached the base of the chief ascent, which is not steep, but long, the path running along the margin of a rhododendron and juniper wood: the height of its summit is 10,873 feet. Thence to Rydang was an uninterrupted and steep descent, the path traversing very beautiful woods of rhododendrons, oaks, yews, &c. Snow was still seen lingering in sheltered places above 10,000 feet. The march throughout was beautiful. In the higher elevations the *Bogh Pat* was very common. Besides the village mentioned, two temporary ones were seen near the base of the great ascent, built for the accommodation of the Yaks and their herdsmen: of this curious animal two herds were seen at some distance.

*March 28th.* We descended directly to the river Gnee, which drains the ravine, and continued down it sometime, crossing it once; then diverging up a small nullah we commenced an ascent, which did not cease until we had reached an elevation of 8374 feet. Continuing for some time at this elevation we traversed picturesque oak and rhododendron woods, with occasionally swardy spots; subsequently descending for a long time until we reached Santagong, in the direction of which the trees became stunted, and the country presented a barren aspect. Santagong is 6300 feet above the sea; it is a small village, but the houses are better than ordinary. The surrounding country, especially to the north, is well cultivated, and the villages numerous. The country is bare of trees; almost the only ones to be seen are some long leaved firs, a short distance below Santagong, close to a small jheel abounding in water-fowl.

*March 29th.* From Santagong we proceeded to Phain, descending immediately to the stream, which runs nearly 1800 feet below our halting-place. Towards Phain the soil became of a deep red colour. This place, which is 5280 feet above the sea, is a small village, containing six or seven tolerable houses.

*April 1st.* To Punnukka. We descended rather gradually towards the Patchien, proceeding at first north-west, and then to the north. On reaching the stream, which is of considerable size, we followed it up, chiefly along its banks, until we arrived at the capital, no view of which is obtained until it is approached very closely. The valley of the Patchien was throughout the march very narrow; there was a good deal of miserable wheat cultivation in it, and some villages, all of moderate size. The country continued extremely bare.

running generally at a small height above its bed. Having crossed it by a rude wooden bridge, we diverged up a tributary stream, until we reached a small village; we thence continued ascending over easy grassy slopes, here and there prettily wooded, until we reached the base of the chief ascent, which is not steep, but long, the path running along the margin of a rhododendron and juniper wood: the height of its summit is 10,873 feet. Thence to Rydang was an uninterrupted and steep descent, the path traversing very beautiful woods of rhododendrons, oaks, yews, &c. Snow was still seen lingering in sheltered places above 10,000 feet. The march throughout was beautiful. In the higher elevations the *Bogh Pat* was very common. Besides the village mentioned, two temporary ones were seen near the base of the great ascent, built for the accommodation of the Yaks and their herdsmen: of this curious animal two herds were seen at some distance.

*March 28th.* We descended directly to the river Gnee, which drains the ravine, and continued down it sometime, crossing it once; then diverging up a small nullah we commenced an ascent, which did not cease until we had reached an elevation of 8374 feet. Continuing for some time at this elevation we traversed picturesque oak and rhododendron woods, with occasionally swardy spots; subsequently descending for a long time until we reached Santagong, in the direction of which the trees became stunted, and the country presented a barren aspect. Santagong is 6300 feet above the sea; it is a small village, but the houses are better than ordinary. The surrounding country, especially to the north, is well cultivated, and the villages numerous. The country is bare of trees; almost the only ones to be seen are some long leaved firs, a short distance below Santagong, close to a small jheel abounding in water-fowl.

*March 29th.* From Santagong we proceeded to Phain, descending immediately to the stream, which runs nearly 1800 feet below our halting-place. Towards Phain the soil became of a deep red colour. This place, which is 5280 feet above the sea, is a small village, containing six or seven tolerable houses.

*April 1st.* To Punnukka. We descended rather gradually towards the Patchien, proceeding at first north-west, and then to the north. On reaching the stream, which is of considerable size, we followed it up, chiefly along its banks, until we arrived at the capital, no view of which is obtained until it is approached very closely. The valley of the Patchien was throughout the march very narrow; there was a good deal of miserable wheat cultivation in it, and some villages, all of moderate size. The country continued extremely bare.

The distance was about eleven miles. Punukka, the second capital in Bootan, the summer residence of a long line of unconquered monarchs—Punukka, to which place we had been so long looking forward with feelings of delight, although the experience of Tongsa ought to have taught us better, disappointed all of us dreadfully: for in the first place I saw a miserable village, promising little comfort as respects accommodation, and one glance at the surrounding country satisfied me that little was to be done in any branch of natural history: for a narrow, unfruitful valley, hemmed in by barren hills, on which no arboreous vegetation was to be seen, except at considerable elevation, gave no great promise of botanical success. The capital of Bootan is for pre-eminence, miserable. The city itself consists of some twelve or fifteen houses, half of which are on the left bank of the river, and two-thirds of which are completely ruinous, and the best of these '*Capital*' houses were far worse than those at Phain or Santagong, &c. Around the city, and within a distance of a quarter of a mile, three or four other villages occur, all bearing the stamp of poverty and the marks of oppression. The palace is situated on a flat tongue of land formed by the confluence of the Matchien and Patchien rivers. To the west it is quite close to the west boundary of the valley, the rivers alone intervening. It is a very large building, but too uniform and too heavy to be imposing: it is upwards of 200 yards in length, by perhaps 80 in breadth. Its regal nature is attested by the central tower, and the several coppered roofs of this. The only cheering objects visible in this capital are the glorious Himalayas to the north, and a Gylong village 1200 or 1500 feet above the palace to the west; elsewhere all is dreary, desolate-looking, and hot. During the first few days of our stay, and indeed until our interview with the Deb, we were much annoyed by the intruding impertinence and blind obstinacy of his followers. They were continually causing disputes either with the sentries or our immediate followers, and it was only by repeated messages to the palace, stating the probable consequence of such a system of annoyance, that Capt. Pemberton succeeded in obtaining any respite. After many delays, we were admitted to the Deb's presence on the 9th. A day or two after, our interview with the Dhurma took place. He received us in an upper room of the quadrangular central tower: while we were in his presence we remained standing, in compliment to his religious character. The Dhurma Rajah is a boy of eight or ten years old, and good-looking, particularly when the looks of his father, the Tungso Pillo, are taken into consideration. He sat in a small recess, lighted chiefly with lamps, and was prompted by a very venge-

The distance was about eleven miles. Punukka, the second capital in Bootan, the summer residence of a long line of unconquered monarchs—Punukka, to which place we had been so long looking forward with feelings of delight, although the experience of Tongsa ought to have taught us better, disappointed all of us dreadfully: for in the first place I saw a miserable village, promising little comfort as respects accommodation, and one glance at the surrounding country satisfied me that little was to be done in any branch of natural history: for a narrow, unfruitful valley, hemmed in by barren hills, on which no arboreous vegetation was to be seen, except at considerable elevation, gave no great promise of botanical success. The capital of Bootan is for pre-eminence, miserable. The city itself consists of some twelve or fifteen houses, half of which are on the left bank of the river, and two-thirds of which are completely ruinous, and the best of these '*Capital*' houses were far worse than those at Phain or Santagong, &c. Around the city, and within a distance of a quarter of a mile, three or four other villages occur, all bearing the stamp of poverty and the marks of oppression. The palace is situated on a flat tongue of land formed by the confluence of the Matchien and Patchien rivers. To the west it is quite close to the west boundary of the valley, the rivers alone intervening. It is a very large building, but too uniform and too heavy to be imposing: it is upwards of 200 yards in length, by perhaps 80 in breadth. Its regal nature is attested by the central tower, and the several coppered roofs of this. The only cheering objects visible in this capital are the glorious Himalayas to the north, and a Gylong village 1200 or 1500 feet above the palace to the west; elsewhere all is dreary, desolate-looking, and hot. During the first few days of our stay, and indeed until our interview with the Deb, we were much annoyed by the intruding impertinence and blind obstinacy of his followers. They were continually causing disputes either with the sentries or our immediate followers, and it was only by repeated messages to the palace, stating the probable consequence of such a system of annoyance, that Capt. Pemberton succeeded in obtaining any respite. After many delays, we were admitted to the Deb's presence on the 9th. A day or two after, our interview with the Dhurma took place. He received us in an upper room of the quadrangular central tower: while we were in his presence we remained standing, in compliment to his religious character. The Dhurma Rajah is a boy of eight or ten years old, and good-looking, particularly when the looks of his father, the Tungso Pillo, are taken into consideration. He sat in a small recess, lighted chiefly with lamps, and was prompted by a very venge-

The distance was about eleven miles. Punukka, the second capital in Bootan, the summer residence of a long line of unconquered monarchs—Punukka, to which place we had been so long looking forward with feelings of delight, although the experience of Tongsa ought to have taught us better, disappointed all of us dreadfully: for in the first place I saw a miserable village, promising little comfort as respects accommodation, and one glance at the surrounding country satisfied me that little was to be done in any branch of natural history: for a narrow, unfruitful valley, hemmed in by barren hills, on which no arboreous vegetation was to be seen, except at considerable elevation, gave no great promise of botanical success. The capital of Bootan is for pre-eminence, miserable. The city itself consists of some twelve or fifteen houses, half of which are on the left bank of the river, and two-thirds of which are completely ruinous, and the best of these '*Capital*' houses were far worse than those at Phain or Santagong, &c. Around the city, and within a distance of a quarter of a mile, three or four other villages occur, all bearing the stamp of poverty and the marks of oppression. The palace is situated on a flat tongue of land formed by the confluence of the Matchien and Patchien rivers. To the west it is quite close to the west boundary of the valley, the rivers alone intervening. It is a very large building, but too uniform and too heavy to be imposing: it is upwards of 200 yards in length, by perhaps 80 in breadth. Its regal nature is attested by the central tower, and the several coppered roofs of this. The only cheering objects visible in this capital are the glorious Himalayas to the north, and a Gylong village 1200 or 1500 feet above the palace to the west; elsewhere all is dreary, desolate-looking, and hot. During the first few days of our stay, and indeed until our interview with the Deb, we were much annoyed by the intruding impertinence and blind obstinacy of his followers. They were continually causing disputes either with the sentries or our immediate followers, and it was only by repeated messages to the palace, stating the probable consequence of such a system of annoyance, that Capt. Pemberton succeeded in obtaining any respite. After many delays, we were admitted to the Deb's presence on the 9th. A day or two after, our interview with the Dhurma took place. He received us in an upper room of the quadrangular central tower: while we were in his presence we remained standing, in compliment to his religious character. The Dhurma Rajah is a boy of eight or ten years old, and good-looking, particularly when the looks of his father, the Tungso Pillo, are taken into consideration. He sat in a small recess, lighted chiefly with lamps, and was prompted by a very venge-

rable looking, grey-headed priest. He had fewer attendants, and his room was less richly ornamented than that of the Deb. Around the room sat priests busily employed in muttering charmed sentences from handsome gilt-lettered black books, which reminded me of those used in some parts of Burmah. During our protracted stay at this place nothing particularly worthy of notice occurred. Intrigues seemed to be constantly going on, and the trial of temper on the part of Captain Pemberton must have been very great; it was however soon evident that no business could be transacted with a Bootea Government without being enabled first to enforce abundance of fear, and consequently any amount of agreement from them; messages to and fro passed continually, the bearer being a very great rascal, in the shape of the Deb's Bengal Moharrer. Thus he would come and appoint the next day for a meeting; then he would return and say that such a place was better than such a place; as evening drew near, he would come and say, unless you agree to such and such, there will be no meeting; and after bearing a message that no change in this respect would be made, he would make his appearance and say, all the ministers were sick, and so could not meet. My only amusement out of doors was a morning walk up or down the valley: I was prompted to this chiefly by the pangs of hunger, as the Bootea supplies were very short, indeed wild pigeons afforded me at least some relief. During the day I examined such objects as my collectors brought in, for it was too hot to think of being out after 9 A.M. The climate of Pুনুকা has but little to recommend it, and in fact nothing, if viewed in comparison with the other places we had seen in Bootan. The greatest annoyance existed in the powerful winds blowing constantly throughout the day up the valley, and which were often loaded with clouds of dust. The mean temperature of April may be considered as  $71^{\circ}$ . The maximum heat observed was  $83^{\circ}$ , the minimum  $64^{\circ}$ . The mean temperature of the first week of May was  $75^{\circ} 3'$ ; the maximum  $80^{\circ}$ , and the minimum  $70^{\circ}$ . The cultivation in the valley, the soil of which seems very poor, containing a large proportion of mica, was during our stay limited to wheat and buck-wheat, but scarcely any of the former seemed likely to come to ear. Ground was preparing for the reception of rice, which is sown and planted in the usual manner. Crops just sown are immediately eaten up by the swarms of sacred pigeons that reside in the palace, so that husbandry is by no means profitable; more especially as there are other means of providing for the crops, such as they may be. Thus we saw several small fields, amounting perhaps to an acre in extent, cut down to provide fodder for some ponies that



rable looking, grey-headed priest. He had fewer attendants, and his room was less richly ornamented than that of the Deb. Around the room sat priests busily employed in muttering charmed sentences from handsome gilt-lettered black books, which reminded me of those used in some parts of Burmah. During our protracted stay at this place nothing particularly worthy of notice occurred. Intrigues seemed to be constantly going on, and the trial of temper on the part of Captain Pemberton must have been very great; it was however soon evident that no business could be transacted with a Bootea Government without being enabled first to enforce abundance of fear, and consequently any amount of agreement from them; messages to and fro passed continually, the bearer being a very great rascal, in the shape of the Deb's Bengal Moharrer. Thus he would come and appoint the next day for a meeting; then he would return and say that such a place was better than such a place; as evening drew near, he would come and say, unless you agree to such and such, there will be no meeting; and after bearing a message that no change in this respect would be made, he would make his appearance and say, all the ministers were sick, and so could not meet. My only amusement out of doors was a morning walk up or down the valley: I was prompted to this chiefly by the pangs of hunger, as the Bootea supplies were very short, indeed wild pigeons afforded me at least some relief. During the day I examined such objects as my collectors brought in, for it was too hot to think of being out after 9 A.M. The climate of Pুনুকা has but little to recommend it, and in fact nothing, if viewed in comparison with the other places we had seen in Bootan. The greatest annoyance existed in the powerful winds blowing constantly throughout the day up the valley, and which were often loaded with clouds of dust. The mean temperature of April may be considered as  $71^{\circ}$ . The maximum heat observed was  $83^{\circ}$ , the minimum  $64^{\circ}$ . The mean temperature of the first week of May was  $75^{\circ} 3'$ ; the maximum  $80^{\circ}$ , and the minimum  $70^{\circ}$ . The cultivation in the valley, the soil of which seems very poor, containing a large proportion of mica, was during our stay limited to wheat and buck-wheat, but scarcely any of the former seemed likely to come to ear. Ground was preparing for the reception of rice, which is sown and planted in the usual manner. Crops just sown are immediately eaten up by the swarms of sacred pigeons that reside in the palace, so that husbandry is by no means profitable; more especially as there are other means of providing for the crops, such as they may be. Thus we saw several small fields, amounting perhaps to an acre in extent, cut down to provide fodder for some ponies that

rable looking, grey-headed priest. He had fewer attendants, and his room was less richly ornamented than that of the Deb. Around the room sat priests busily employed in muttering charmed sentences from handsome gilt-lettered black books, which reminded me of those used in some parts of Burmah. During our protracted stay at this place nothing particularly worthy of notice occurred. Intrigues seemed to be constantly going on, and the trial of temper on the part of Captain Pemberton must have been very great; it was however soon evident that no business could be transacted with a Bootea Government without being enabled first to enforce abundance of fear, and consequently any amount of agreement from them; messages to and fro passed continually, the bearer being a very great rascal, in the shape of the Deb's Bengal Moharrer. Thus he would come and appoint the next day for a meeting; then he would return and say that such a place was better than such a place; as evening drew near, he would come and say, unless you agree to such and such, there will be no meeting; and after bearing a message that no change in this respect would be made, he would make his appearance and say, all the ministers were sick, and so could not meet. My only amusement out of doors was a morning walk up or down the valley: I was prompted to this chiefly by the pangs of hunger, as the Bootea supplies were very short, indeed wild pigeons afforded me at least some relief. During the day I examined such objects as my collectors brought in, for it was too hot to think of being out after 9 A.M. The climate of Pুনুকা has but little to recommend it, and in fact nothing, if viewed in comparison with the other places we had seen in Bootan. The greatest annoyance existed in the powerful winds blowing constantly throughout the day up the valley, and which were often loaded with clouds of dust. The mean temperature of April may be considered as  $71^{\circ}$ . The maximum heat observed was  $83^{\circ}$ , the minimum  $64^{\circ}$ . The mean temperature of the first week of May was  $75^{\circ} 3'$ ; the maximum  $80^{\circ}$ , and the minimum  $70^{\circ}$ . The cultivation in the valley, the soil of which seems very poor, containing a large proportion of mica, was during our stay limited to wheat and buck-wheat, but scarcely any of the former seemed likely to come to ear. Ground was preparing for the reception of rice, which is sown and planted in the usual manner. Crops just sown are immediately eaten up by the swarms of sacred pigeons that reside in the palace, so that husbandry is by no means profitable; more especially as there are other means of providing for the crops, such as they may be. Thus we saw several small fields, amounting perhaps to an acre in extent, cut down to provide fodder for some ponies that

had lately shared in a religious excursion to Wandipore. Cattle are not frequent. There were some pigs. The fowls were of the most miserable description, and very scarce. In spite of offers of purchase and plenty of promises, we were throughout allowed three a day, and they were rather smaller than pigeons. Towards the latter end of our stay rice became bad and scarce. There are a great number of Assamese slaves about Pুনukka : indeed, all the agricultural work, as well as that of beasts of burden, appears to devolve upon these unfortunate creatures, who are miserably provided for, and perhaps dirtier than a genuine Bootea himself. On the 9th May at noon we left Pুনukka, the most uninviting place I have ever seen in a hilly country. On the morning of the same day there was a demonstration in the palace of great boldness ; the roof of the northern side was covered with troops, who shouted, fired, and waved banners. We crossed both bridges of the palace without any interruption or annoyance, at which I was most agreeably surprised ; and then gradually ascended the right flank of the valley, following the course of the united rivers, Patchien and Matchien. We proceeded in this direction for some time, until we came on a ravine affording an outlet to a tributary of the Pুনukka river, which we then followed, gradually descending through fir woods until we reached the torrent. Crossing this, which is a small one, we commenced the ascent to Telagong, which we soon reached.

[To be continued.]

---

#### BIBLIOGRAPHICAL NOTICES.

*A Report on the Progress of Vegetable Physiology during the year 1837.* By F. J. F. Meyen, M.D., Professor of Botany in the University of Berlin. Translated from the German, by William Francis, A.L.S. London, 1839. Svo. pp. 158.

To those who are interested in the cultivation of science it might appear superfluous to recommend such a work as this ; and yet the delay in its appearance, caused by the want of a sufficient number of subscribers at its very moderate price to cover the mere expenses of publication, seems to indicate that it is not sufficiently known or appreciated. No one can now assume any elevated position in botanical science who is not conversant with the structure and physiology of plants, as well as with their external forms and aspects. The time when the acquirements of a naturalist were measured by the number of species he had collected is now, we trust, gone by for ever, and *names* and *classifications* are looked upon by the man of

had lately shared in a religious excursion to Wandipore. Cattle are not frequent. There were some pigs. The fowls were of the most miserable description, and very scarce. In spite of offers of purchase and plenty of promises, we were throughout allowed three a day, and they were rather smaller than pigeons. Towards the latter end of our stay rice became bad and scarce. There are a great number of Assamese slaves about Pুনukka : indeed, all the agricultural work, as well as that of beasts of burden, appears to devolve upon these unfortunate creatures, who are miserably provided for, and perhaps dirtier than a genuine Bootea himself. On the 9th May at noon we left Pুনukka, the most uninviting place I have ever seen in a hilly country. On the morning of the same day there was a demonstration in the palace of great boldness ; the roof of the northern side was covered with troops, who shouted, fired, and waved banners. We crossed both bridges of the palace without any interruption or annoyance, at which I was most agreeably surprised ; and then gradually ascended the right flank of the valley, following the course of the united rivers, Patchien and Matchien. We proceeded in this direction for some time, until we came on a ravine affording an outlet to a tributary of the Pুনukka river, which we then followed, gradually descending through fir woods until we reached the torrent. Crossing this, which is a small one, we commenced the ascent to Telagong, which we soon reached.

[To be continued.]

---

#### BIBLIOGRAPHICAL NOTICES.

*A Report on the Progress of Vegetable Physiology during the year 1837.* By F. J. F. Meyen, M.D., Professor of Botany in the University of Berlin. Translated from the German, by William Francis, A.L.S. London, 1839. Svo. pp. 158.

To those who are interested in the cultivation of science it might appear superfluous to recommend such a work as this ; and yet the delay in its appearance, caused by the want of a sufficient number of subscribers at its very moderate price to cover the mere expenses of publication, seems to indicate that it is not sufficiently known or appreciated. No one can now assume any elevated position in botanical science who is not conversant with the structure and physiology of plants, as well as with their external forms and aspects. The time when the acquirements of a naturalist were measured by the number of species he had collected is now, we trust, gone by for ever, and *names* and *classifications* are looked upon by the man of

had lately shared in a religious excursion to Wandipore. Cattle are not frequent. There were some pigs. The fowls were of the most miserable description, and very scarce. In spite of offers of purchase and plenty of promises, we were throughout allowed three a day, and they were rather smaller than pigeons. Towards the latter end of our stay rice became bad and scarce. There are a great number of Assamese slaves about Pুনুকা : indeed, all the agricultural work, as well as that of beasts of burden, appears to devolve upon these unfortunate creatures, who are miserably provided for, and perhaps dirtier than a genuine Bootea himself. On the 9th May at noon we left Pুনুকা, the most uninviting place I have ever seen in a hilly country. On the morning of the same day there was a demonstration in the palace of great boldness ; the roof of the northern side was covered with troops, who shouted, fired, and waved banners. We crossed both bridges of the palace without any interruption or annoyance, at which I was most agreeably surprised ; and then gradually ascended the right flank of the valley, following the course of the united rivers, Patchien and Matchien. We proceeded in this direction for some time, until we came on a ravine affording an outlet to a tributary of the Pুনুকা river, which we then followed, gradually descending through fir woods until we reached the torrent. Crossing this, which is a small one, we commenced the ascent to Telagong, which we soon reached.

[To be continued.]

---

#### BIBLIOGRAPHICAL NOTICES.

*A Report on the Progress of Vegetable Physiology during the year 1837.* By F. J. F. Meyen, M.D., Professor of Botany in the University of Berlin. Translated from the German, by William Francis, A.L.S. London, 1839. 8vo. pp. 158.

To those who are interested in the cultivation of science it might appear superfluous to recommend such a work as this ; and yet the delay in its appearance, caused by the want of a sufficient number of subscribers at its very moderate price to cover the mere expenses of publication, seems to indicate that it is not sufficiently known or appreciated. No one can now assume any elevated position in botanical science who is not conversant with the structure and physiology of plants, as well as with their external forms and aspects. The time when the acquirements of a naturalist were measured by the number of species he had collected is now, we trust, gone by for ever, and *names* and *classifications* are looked upon by the man of